

## Dr. Kemal Gürsoy

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CONTACT INFORMATION	Rutgers Business School Newark & New Brunswick Rutgers University 100 Rockafeller Road, Room 5146 Piscataway, NJ 08854 USA	<i>Tel:</i> +1-848-445-9242 <i>Fax:</i> +1-732-445-1133 kgursoy@business.rutgers.edu <a href="http://sites.rutgers.edu/kemal-gursoy">sites.rutgers.edu/kemal-gursoy</a>
TEACHING INTERESTS	<ul style="list-style-type: none"><li>• Probability Theory</li><li>• Mathematical Statistics</li><li>• Multivariate Statistics</li></ul>	RESEARCH INTERESTS <ul style="list-style-type: none"><li>• Stochastic Optimization</li><li>• Random Geometry</li><li>• Topological Statistics</li></ul>
EDUCATION	MBA, 2002, <b>Rutgers University/RBS</b> , Newark/New Brunswick, NJ, USA <ul style="list-style-type: none"><li>• Area of Study: Management Science &amp; Information Systems</li><li>• Specialization: Operations Management, Statistics.</li></ul> PhD, 1997, <b>Rutgers University</b> , NJ, USA <ul style="list-style-type: none"><li>• Dissertation: <i>Branch and bound methods for sequentially choosing among competing projects</i></li><li>• Dissertation Adviser: Professor Michael N. Katehakis</li><li>• Areas of Study: Management Science &amp; Information Systems, Statistics</li></ul> MS, 1987, <b>University of Pennsylvania</b> , Philadelphia, PA, USA <ul style="list-style-type: none"><li>• Area of Study: Systems Engineering</li><li>• Specialization: Artificial Intelligence &amp; Robotics, Decision Sciences &amp; Information Systems</li></ul> BS, 1980, MS, 1981, <b>Middle East Technical University</b> , Ankara, Turkey <ul style="list-style-type: none"><li>• Master's Thesis: <i>Time-varying parameter estimation with extended Kalman filters for adaptive control applications</i></li><li>• Thesis Adviser: Professor Halil Ö. Gülcür</li><li>• Areas of Study: Electrical Engineering, Mathematics</li><li>• Specialization: Adaptive Systems, Stochastic Control Theory, Applications of Algebraic Geometry, Differential Geometry and Lie Algebra for Nonlinear Dynamic Systems.</li></ul>	
TEACHING EXPERIENCE	<b>Associate Professor of Professional Practice</b> <b>Assistant Professor of Professional Practice</b> <b>Instructor</b> <b>Rutgers University/RBS</b> , Department of Management Science and Information Systems, Newark and New Brunswick campuses, New Jersey <ul style="list-style-type: none"><li>• Lectured Statistical Methods In Business. Authored many pages of course material archived at <a href="http://www.rci.rutgers.edu/~kgursoy">http://www.rci.rutgers.edu/~kgursoy</a></li><li>• Attended DIMACS Seminars.</li><li>• Attended MSIS Department Seminars.</li><li>• Attended Applied Probability Society Seminars.</li></ul> <b>Visiting Professor</b> <b>Bogazici University</b> , Department of Mathematics, Istanbul, Turkey <ul style="list-style-type: none"><li>• Authored many pages of course material archived at <a href="http://www.math.boun.edu.tr/instructors/visitors/gursoy/gursoy.htm">http://www.math.boun.edu.tr/instructors/visitors/gursoy/gursoy.htm</a><ul style="list-style-type: none"><li>• Lectured Probability Theory, Mathematical Statistics, and Multivariate Statistics</li></ul></li></ul>	July 2019 - present July 2014 - June 2019 July 2013 - June 2014 Summer terms, 2000-2016

**Part Time Lecturer**

1/2010-12/2012

**Rutgers University**, Department of Statistics, Piscataway, NJ

- Lectured Theory of Probability, Theory of Statistics, Statistics for Research, Multivariate Statistical Analysis, Statistical Quality Control
- Authored many pages of course material archived at <http://stat.rutgers.edu/~kgursoy>.

**Associate Professor**

9/2005-8/2008

**Kean University**, Department of Management Science, Union, NJ

- Lectured Statistical Methods In Business, Operations Management
- Authored many pages of course material archived at <http://kean.edu/~kgursoy>.

**Assistant Professor**

9/1996-8/2005

**Long Island University**, Department of Managerial Sciences, Brooklyn, NY

- Lectured Statistical Methods In Business, Operations Management, Information Systems, Business Economics, Time-Series Analysis, Corporate Finance, Mathematical Models for Finance.
- Authored many pages of course material archived at <http://liu.edu/~kgursoy>.

## SOFTWARE SKILLS Computer Programming:

- **FORTRAN, C**
- **Maple, R, SAS**

## Analytical Skills :

- Linear algebra, differential geometry, topology, algebraic geometry, nonlinear numerical methods, statistics, probability, stochastic processes, optimization.

## Desktop Editing and Productivity Software:

- Microsoft Office, OpenOffice.org, LibreOffice, Corel WordPerfect, Google Docs
- Vim, Emacs, Eclipse
- T<sub>E</sub>X (L<sup>A</sup>T<sub>E</sub>X, B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>, P<sub>S</sub>Tricks)

## Operating Systems:

- Microsoft Windows family,
- Apple OS X,
- Linux, BSD, and other UNIX variants

## BOOKS

- [1] Gürsoy, K., *Lecture Notes on Statistical Methods in Business, Second Edition*, Kendall/Hunt Publishing Co., Dubuque, Iowa, 2022, ISBN 979-8-7657-3092-8.
- [2] Gürsoy, K., *Lecture Notes on Statistical Methods in Business*, Kendall/Hunt Publishing Co., Dubuque, Iowa, 2021, ISBN 978-1-7924-7744-7.
- [3] Gürsoy, K., Baykal-Gürsoy, M., Gürsoy, A., *An Introduction to Probability and Statistics*, Kendall/Hunt Publishing Co., Dubuque, Iowa, 2015, ISBN 978-1-4652-7705-3.
- [4] Gürsoy, K., *Management with Information Systems*, Kendall/Hunt Publishing Co., Dubuque, Iowa, 2003, ISBN 0-7575-0344-6.

- [1] Gürsoy, K., "Multi-Armed Bandit Games," **Annals of Operations Research**, pp. 1-13, October 2024.
- [2] Gürsoy, K., "An Optimal Selection for Ensembles of Influential Projects," **Annals of Operations Research**, pp. 1-20, February 2020.
- [3] Gürsoy, K., "How to Measure and Predict Sustainability?" **Proceedings of the Oxford Business and Economics Conference**, pp. 1-8, July 2017.
- [4] Gürsoy, K., "Optimal Selections among Competing Projects: Multi-Armed Bandits," **Proceedings of the Cambridge Business and Economics Conference**, pp. 1-9, July 2014, ISBN 9780974211428.
- [5] Gürsoy, K. and Baykal-Gürsoy, M., "Forecasting: State-Space Models and Kalman Filter Estimation," **Wiley Encyclopedia of Operations Research and Management Sciences**, pp. 1-9, January 2011.
- [6] Baykal-Gürsoy, M. and Gürsoy, K., "Semi-Markov Decision Processes: Nonstandard Criteria," **Journal of Probability in The Engineering and Informational Systems**, Vol. 21, No. 4, pp. 635-657, 2007.
- [7] Gürsoy, K., "An Exponential Model for Treatment Effects Without a Control Group," **Turkish Journal of Mathematics**, Vol. 29, No. 2, pp. 193-200, 2005.
- [8] Nugent, E., Baykal-Gürsoy, M. and Gürsoy, K., "Residuals for k-Step-Ahead Controlled Processes and Related Monitoring Problems," **Journal of Quality & Reliability Engineering International**, Vol. 21, No. 1, pp. 63-80, 2005.
- [9] Gürsoy, K. and Katehakis, M., "On Maximizing the Availability of Two Component Series Systems in Discrete Time," **American Journal of Mathematical and Management Sciences**, Vol. 23, No. 1&2, pp. 61-73, 2003.
- [10] Gülcür, H.Ö., Akman, V. and Gürsoy, K., "CAD: An Adaptive Controller Based on the Extended Kalman Filter," **Proceedings of IFAC**, pp. 452-473, 1982.

- [1] Gürsoy K., "Category Theory and Decision Making," 2022, <https://doi.org/10.7282/00000227>
- [2] Gürsoy K., "A Model Theoretic Approach to Classify Influential Projects," 2021, <https://doi.org/10.7282/00000099>
- [3] Gürsoy K., "Shape Theory and Topological Statistics," 2020, <https://doi.org/doi:10.7282/t3-ws6g-8563>
- [4] Sundararajan A. and Gürsoy K., "Telecom Customer Churn Prediction," 2020, <https://doi.org/doi:10.7282/t3-76xm-de75>
- [5] Inamdar S. R. and Gürsoy K., "Cloud Hosted Business-Data Driven BI Platforms," 2019, <https://doi.org/doi:10.7282/t3-f5vq-4938>
- [6] Shah S. H. and Gürsoy K., "Customer Transaction Prediction," 2019, <https://doi.org/doi:10.7282/t3-0j57-mt16>
- [7] Sahai L. S. and Gürsoy K., "Real Time Credit Card Fraud Detection," 2019, <https://doi.org/doi:10.7282/t3-qe71-9791>
- [8] Mannadier N. and Gürsoy K., "Neural Networks for Text Classification," 2019, <https://doi.org/doi:10.7282/t3-pbzf-3m92>

CONFERENCE  
PRESENTATIONS

- [1] Multi-Armed Bandits and Games, Fall 2024 INFORMS Annual Conference, October 2024, Seattle, Washington. *Chaired the Advanced Bandit Algorithms and Optimization Techniques Session.*
- [2] Mean-Field Games and Multi-Armed Bandits, Bernoulli-IMS 11th World Congress in Probability and Statistics, from August 12 to August 16, 2024, Bochum, Germany.
- [3] Multi-Armed Bandit Games, EURO 2024, European Conference on Operations Research, from June 30 to July 3, 2024, Copenhagen, Denmark.
- [4] How the Mean Field Games Applied to Many Player Differential Games, Fall 2023 INFORMS Annual Conference, October 2023, Phoenix, Arizona.
- [5] Category Theory and Optimal Decisions, Fall 2022 INFORMS Annual Conference, October 2022, Indianapolis, Indiana.
- [6] A Model Theoretic Approach to Categorization of Projects, Fall 2021 INFORMS Annual Conference, October 2021, Anaheim, CA. *Chaired the Analytics III Session.*
- [7] On Dynamic Systems and Kalman Filter Estimation, Fall 2020 INFORMS Annual Conference, November 2020 (On-Line).
- [8] Geometric Statistics: Topological Data Analysis, Fall 2020 INFORMS Annual Conference, November 2020 (On-Line). *Chaired the Data Driven Methodologies for Decision Making Session.*
- [9] Shape theory and Topological Statistics, Fall 2019 INFORMS Annual Conference, October 2019, Seattle, WA.
- [10] Predicting and Managing Sustainability, Fall 2018 INFORMS Annual Conference, November 2018, Phoenix, Arizona.
- [11] Extended Kalman Filter for Predicting Sustainability, Fall 2017 INFORMS Annual Conference, October 2017, Houston, Texas. *Chaired the Technology Management Session.*
- [12] How to Measure and Predict Sustainability? Oxford Business and Economics Conference, July 2017, Oxford University, Oxford, UK.
- [13] Random Dimensional Spaces, INFORMS Annual Meeting, November 2016, Nashville, Tennessee.
- [14] Moments of a Random Set, INFORMS Annual Meeting, November 2015, Philadelphia, Pennsylvania.
- [15] On Maximizing the Availability of Systems Composed of Repairable Components, 18th INFORMS Applied Probability Society Conference, July 2015, Koc University, Istanbul, Turkey.
- [16] Optimal Procurement: Case of A Cost Conscious Manufacturer, Fall 2014 Annual Meeting of INFORMS, San Francisco, California. *Chaired the Inventory Management Session.*
- [17] Optimal Selections among Competing Projects, Conference on Business & Economics Program, July 2014, Cambridge University, Cambridge, UK.
- [18] Influential Multi-Armed Bandits, Fall 2007 Conference of INFORMS, Seattle, Washington.
- [19] Random Graphs and Restricted Second Order Logic, Fall 2006 INFORMS Conference, Pittsburgh, Pennsylvania.

- [20] Evolving Bayesian Graphs, Fall 2005 INFORMS Conference, San Francisco, California.
- [21] Residuals for k-Step-Ahead Controlled Processes and Related Monitoring Problems, July 2003 INFORMS Conference, Istanbul, Turkey. *Chaired the Health Care Session.*
- [22] Alignment of Mammogram Pairs, Fall 2002 IEEE 2nd Joint EMBS-BMSE Conference, Houston, Texas.
- [23] Approximating the Stochastic Diffusion Equation by an Ordinary Differential Equation, Fall 2001 INFORMS Conference, Miami, Florida. *Chaired the Probability Session.*
- [24] Models of Repair Allocations in Discrete Time, Fall 2000 INFORMS Conference, San Antonio, Texas. *Chaired the Queuing and Inventory Control Session.*
- [25] Utilization of Statistics to Understand Causality, Spring 2000 INFORMS Conference, Salt Lake City, Utah.
- [26] On Maximizing the Reliability of Series Systems in Discrete Time, Fall 1999 INFORMS Conference, Philadelphia, Pennsylvania.
- [27] What We Could Use: Chaos Theory vs. Time-Series Analysis, 1998 International Conference of The Academy of Business Administration, July, Barcelona, Spain. *Chaired the Stochastic Processes and Their Applications Session.*
- [28] How to Treat All The Patients and Acquire Sufficient Information About the Treatment Effect, 1997 Conference of The Academy of Business Administration, April, Cancun, Mexico.
- [29] Hub and Spoke System Design with Concave Cost, Fall 1996 INFORMS Conference, Atlanta, Georgia.

AWARDS

- Hindi YUVA at Rutgers University, Guru Vandana, 2023 and 2024.
- RBS NTT Excellence in Scholarly Contributions Award, 2021.
- Rutgers University Open and Affordable Textbook Grant, 2017-2018.
- Rutgers Business Governing Association Best BAIT Professor Award for 2016-2017.
- RBS Teaching Excellence Award for 2016-2017.

ACADEMIC  
SERVICE

***Rutgers University Senate, Student Affairs Committee***  
From 2017 to present.

***Rutgers University Senate, Faculty and Personnel Affairs Committee***  
From 2014 to 2017.

***Rutgers University, SAS Honors College***  
Faculty Mentor, from 2016 to present.

***RBS, New Brunswick Academic Standing Committee***  
Member.

***RBS, New Brunswick Undergraduate Curriculum Committee***  
Member.

***RBS, MSIS Dept., PEC Committee***  
Member.

***RBS, MSIS Dept., Teaching Methods and Innovations Committee***  
Member.

***Ad Hoc Dean Meritorious Service Evaluation Committee***  
Member.

*Ad Hoc Task Force on NTT Promotions Appointments and Promotions*  
Member.

*The Business Analytics and Information Technology Society*  
Participated in many activities of this Rutgers University Student Society.

*Academic advisor of the RBS, The Business Analytics and Information Technology Society,*  
2020, 2021.

*Second, Third, and Fourth Rutgers Applied Probability Conferences*  
Member of the organization committees.

*Academic advisor of the Rutgers Business School Teams for the Johnson & Johnson University Case Competitions,* From 2013 to 2019.

ADVISING  
RESEARCH  
PROJECTS

*Rutgers University, RBS Newark and New Brunswick, MSIS Department, MITA Program, Graduate Students:*

- Nidhi Mannadier, "Neural Networks for Text Classification," Spring 2019
- Saachi Hemal Shah, "Customer Transaction Prediction," Spring 2019
- Laksha Sahai, "Real-Time Credit Card Fraud Detection," Fall 2019
- Siddesh Rajesh Inamdar, "Cloud Hosted Business-Data Driven BI Platforms," Fall 2019
- Abhijit Sundararajan, "Telecom Customer Churn Prediction," Fall 2019

ADVISING THESE

*Rutgers University, SAS Honors College, Undergraduate Students, Capstone Research Thesis:*

- Amanda Phu, "The Effect of Coronavirus-19 Pandemic and Vaccination Process on New Jersey Businesses," May 2022.
- Ankit Patel, "Does Relative Strength Produces Financial Returns ?" May 2022.
- Swetcha Ananthu, "Comparative Time-Series Analysis of New Jersey's Seasonally Adjusted and Seasonally Unadjusted Unemployment Rates from 2010 to 2020," May 2020.

MENTORING

*Rutgers University, SAS Honors College Faculty Mentor*  
Mentoring undergraduate students.

PROFESSIONAL  
SERVICE

*Rutgers University Honors College 2021 Spring Semester Large Assembly Colloquium*

- Panelist, Representing Rutgers Business School, Newark and New Brunswick: "Connections of Different Fields of Academia and Interests, Research and Other Activities"

**Conference Service**

- Chair of Several INFORMS sessions
- Chair of Several Academy of Business Administration sessions

**Reviewer for Journals**

- Annals of Operations Research
- Naval Research and Logistics
- Probability in the Engineering and Informational Sciences
- Society of Industrial and Applied Mathematics

**Review of Books**

- Several book reviews on Information Systems, Operations Research, Experimental Mathematics, Causality and Statistics for the AMS, Cambridge University Press, Prentice Hall, John Wiley and McGraw-Hill publishing companies, since 1996

PROFESSIONAL  
MEMBERSHIPS

- **AMS, American Mathematical Society**  
Member from 1992 to 2016, Lifetime member since 2016
- **APS, Applied Probability Society**  
Member since 1996
- **IFAC, International Federation of Automatic Control**  
Affiliate since 2024
- **INFORMS, The Institute for Operations Research and the Management Sciences**  
Member from 1996 to 2024, Senior Member since 2024

CITIZENSHIP

Citizen of the **USA**.